

What is claimed is:

1. A nitride semiconductor laser device comprising a nitride semiconductor substrate (101); a nitride semiconductor layer that has an n-type semiconductor layer (102), an active layer (104) and a p-type semiconductor layer (103) laminated on or above the nitride semiconductor substrate (101), and has a stripe-shaped waveguide region for laser light; and end surface protective films (110) on the both end surface substantially perpendicular to the waveguide region, wherein
 - the nitride semiconductor substrate (101) has a luminescent radiation region (112) that absorbs light emitted from the active layer (104) and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light, and
 - the end surface protective films (110) have a high reflectivity for the wavelength of the luminescent radiation from the luminescent radiation region (112).
2. The nitride semiconductor laser device according to claim 1, wherein the end surface protective films (110) are located on the end surfaces both on the emission side and the rear side.
3. The nitride semiconductor laser device according to claim 1, wherein the end surface protective films (110) have a low reflectivity for the wavelength of the emitted light from the active layer (104).
4. The nitride semiconductor laser device according to any of claims 1 to 3, wherein the end surface protective films (110) have a single-layer or multilayer structure.
5. A nitride semiconductor laser device comprising a nitride semiconductor substrate (101); a nitride semiconductor layer that has an n-type semiconductor layer (102), an active layer (104) and a p-type semiconductor layer (103) laminated on or above the nitride semiconductor substrate (101), and has a stripe-shaped waveguide region for laser light; and an emission-side end surface protective film and a rear-side end surface protective film opposed thereto on the

- end surfaces substantially perpendicular to the waveguide region, wherein
the nitride semiconductor substrate (101) has a luminescent radiation
region (112) that absorbs light emitted from the active layer (104) and emits
luminescent radiation with a wavelength longer than the wavelength of the
5 emitted light, and
- the rear-side end surface protective film includes a first end surface
protective film having a high reflectivity for the wavelength of the luminescent
radiation, and a second end surface protective film having a high reflectivity for
the wavelength of the emitted light from the active layer (104), wherein
10 the emission-side end surface protective film includes a third end
surface protective film having a high reflectivity for the wavelength of the
luminescent radiation.
6. The nitride semiconductor laser device according to claim 5, wherein the first
15 end surface protective film and/or the third end surface protective film has a low
reflectivity for the wavelength of the emitted light from the active layer (104).
7. The nitride semiconductor laser device according to claim 5 or 6, wherein the
emission-side end surface protective film includes a fourth end surface
20 protective film having a high reflectivity for the wavelength of the emitted light
from the active layer (104).
8. The nitride semiconductor laser device according to any of claims 5 to 7,
wherein each of the first, second, third and fourth end surface protective films
25 (110) has a single-layer or multilayer structure.
9. The nitride semiconductor laser device according to any of claims 5 to 8,
wherein the first and second end surface protective films are laminated so as to
at least partially overlap each other.
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10. The nitride semiconductor laser device according to claim 8, wherein the
third and fourth end surface protective films are laminated so as to at least
partially overlap each other.
- 35 11. The nitride semiconductor laser device according to claim 5 or 6, wherein the

second end surface protective film is formed in contact with the semiconductor layer.

5 12. The nitride semiconductor laser device according to claim 7, wherein the fourth end surface protective film is formed in contact with the semiconductor layer.

10 13. The nitride semiconductor laser device according to any of claims 1 to 12, wherein the luminescent radiation region (112) has a low dislocation density as compared with the periphery thereof.

14. The nitride semiconductor laser device according to any of claims 1 to 13, wherein the luminescent radiation region (112) has a high impurity concentration as compared with the periphery thereof.

15 15. The nitride semiconductor laser device according to claim 14, wherein the impurity is at least one element selected from the group consisting of H, O, C and Si.

20 16. The nitride semiconductor laser device according to any of claims 1 to 15, wherein the active layer (104) has a light emission wavelength of 390 to 420 nm.

25 17. The nitride semiconductor laser device according to any of claims 1 to 16, wherein the luminescent radiation has a wavelength of 550 to 600 nm.

18. The nitride semiconductor laser device according to any of claims 1 to 17, wherein the luminescent radiation region (112) is formed in a stripe shape substantially parallel to the waveguide region.

30 19. The nitride semiconductor laser device according to any of claims 1 to 18, wherein the waveguide region is formed above the luminescent radiation region (112).

35 20. The nitride semiconductor laser device according to any of claims 1 to 19, wherein the waveguide region is formed in a region that is spaced away from the

luminescent radiation region (112).

21. A laser apparatus comprising the nitride semiconductor laser device according to any of claims 1 to 20, and a detector that detect the light emission
5 of the nitride semiconductor laser device, wherein the detector has a spectral sensitivity in a wavelength λ_{ex} of the luminescent radiation higher than a wavelength λ_{LD} of the emitted light of the nitride semiconductor laser device.